

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A humidity control system for supplying either one of a dehumidified first air stream and a humidified second air stream to an indoor space and for discharging the other air stream to an outdoor space, the humidity control system comprising:

a refrigerant circuit which includes a first and a second adsorbent-supported heat exchangers, which are both fluidly connected in the refrigerant circuit to perform a refrigeration cycle, and which is capable of reversing the circulation direction of a refrigerant;

a box-shaped casing having larger horizontal dimensions than its vertical dimension, and internally having an air passageway in which the heat exchangers are disposed side by side in a horizontal plane;

an air supplying fan and an air exhausting fan which are disposed in the casing; and

a switching mechanism for changing the distribution route of air in the casing depending on the circulation direction of the refrigerant in the refrigerant circuit so that a first air stream is passed through one of the heat exchangers that is functioning as an evaporator while a second air stream is passed through the other heat exchanger that is functioning as a condenser, wherein

the casing has an internal space which is divided into a first space defined along a fan side lateral plate as a lateral plate of the casing, and a remaining second space,

the air supplying fan and the air exhausting fan are disposed in the first space and the first and second heat exchangers and the switching mechanism are disposed in the second space,

~~a compressor of the refrigerant circuit is and a reversal mechanism for reversing the circulation direction of refrigerant in the refrigerant circuit are disposed between the air supplying fan and the air exhausting fan in the first space of the casing,~~

the casing is provided with a partition plate for partitioning the first space into an air supplying side space provided with the air supplying fan and the compressor, and an air exhausting side space provided with an air exhausting fan, and

an operation in which air having passed through the first heat exchanger flows into the air supplying side space, and air having passed through the second heat exchanger flows into the air exhausting side space, and an operation in which air having passed through the second heat

exchanger flows into the air supplying side space, and air having passed through the first heat exchanger flows into the air exhausting side space are alternatively performed
~~the compressor is disposed in the air passageway of the casing, and~~
~~the compressor is disposed downstream of the first and second heat exchangers in the air passageway along the route of the air stream supplied to the indoor space.~~

2-3. (Canceled).

4. (Currently Amended) The humidity control system of any one of claims 1₁[-3,] wherein, in the casing, an outlet opening and an inlet opening are opened to provide a fluid connection with ducts in fluid communication with the indoor space and another outlet opening and another inlet opening are opened to provide a fluid connection with ducts in fluid communication with the outdoor space.

5. (Currently Amended) The humidity control system of any one of claims 1₁[-3,] wherein, in the casing, an outlet opening and an inlet opening are opened to provide a direct fluid communication between the casing and the indoor space and another outlet opening and another inlet opening are opened to provide a fluid connection with ducts in fluid communication with the outdoor space.

6-7. (Canceled).

8. (Previously Presented) The humidity control system of claim 1, wherein the casing is shaped like a flattened box with a thickness direction defined parallel to shortest side of the flattened box, and the first and second heat exchangers are so arranged as to allow passage of air in the thickness direction of the casing.

9. (Previously Presented) The humidity control system of claim 1, wherein
the casing is shaped like a flattened box with a thickness direction defined parallel to
shortest side of the flattened box, and
the first and second heat exchangers are so arranged as to allow passage of air in a
direction perpendicular to the thickness direction of the casing.

10. (Previously Presented) The humidity control system of claim 1, wherein
the casing is shaped like a flattened box with a thickness direction defined parallel to
shortest side of the flattened box, and

the air supplying fan and the air exhausting fan each comprises a respective multi-blade
fan which is configured to draw in air from a lateral side of a fan casing thereof and then deliver
it forward and which is disposed such that the center of an axle of its impeller is oriented in the
thickness direction of the casing.

11. (Currently Amended) The humidity control system of claim 10, wherein:
an air supplying opening and an inside air inlet opening which are in fluid
communication with the indoor space are provided in one of two lateral plates of the casing
which are orthogonal to the fan side lateral plate, and an air exhausting opening and an outside
air inlet opening which are in fluid communication with the outdoor space are provided in the
other of the lateral plates;

in the second space, (i) a first heat exchange chamber in which the first heat exchanger is
accommodated and a second heat exchange chamber in which the second heat exchanger is
accommodated are defined adjacently side by side in a direction orthogonal to the fan side lateral
plate, (ii) a first inflow path for the inflow of air and a first outflow path for the outflow of air are
provided which extend along a continuous lateral surface of one of the two heat exchange
chambers, respectively, and which are superimposedly arranged in the thickness direction of the
casing, and (iii) a second inflow path for the inflow of air and a second outflow path for the
outflow of air are provided which extend along a continuous lateral surface[[s]] of the other of
the two heat exchange chambers and which are superimposedly arranged in the thickness
direction of the casing; and

the outflow paths are in fluid communication with the first space through fan side communication openings.

12. (Previously Presented) The humidity control system of claim 10, wherein:
an air supplying opening in fluid communication with the indoor space and an air exhausting opening in fluid communication with the outdoor space are provided in the fan side lateral plate of the casing and an inside air inlet opening and an outside air inlet opening are provided in a lateral plate opposite the fan side lateral plate;

in the second space, (i) a first heat exchange chamber in which the first heat exchanger is accommodated and a second heat exchange chamber in which the second heat exchanger is accommodated are defined adjacently side by side in the longitudinal direction of the fan side lateral plate and (ii) between one of continuous lateral surfaces of the two heat exchange chambers and the lateral plate opposite the fan side lateral plate a first inflow path for the inflow of air and a second inflow path for the inflow of air are provided which extend along the lateral plate and which are superimposedly arranged in the thickness direction of the casing and between the other of the continuous lateral surfaces of the two heat exchange chambers and the fan side lateral plate a first outflow path for the outflow of air and a second outflow path for the outflow of air are provided which extend along the fan side lateral plate and which are superimposedly arranged in the thickness direction of the casing; and

the outflow paths are in fluid communication with the first space through fan side communication openings.

13. (Previously Presented) The humidity control system of either claim 11 or 12, wherein:

the air supplying fan is arranged such that a fan inlet opening, provided in the lateral side of the fan casing of the air supplying fan, faces either one of the fan side communication openings; and

the air exhausting fan is arranged such that a fan inlet opening, provided in the lateral side of the fan casing of the air exhausting fan, faces the other of the fan side communication openings.

14-15. (Canceled).

16. (Previously Presented) The humidity control system of claim 1, wherein the humidity control system includes an outdoor filter which is arranged and formed along both an outside-air inflow surface of the first heat exchanger and an outside-air inflow surface of the second heat exchanger.

17. (Previously Presented) The humidity control system of claim 16, wherein:
a first passageway in which the first heat exchanger is disposed and a second passageway in which the second heat exchanger is disposed are formed in the casing; and
the outdoor filter includes a first filter part disposed in the first passageway, and a second filter part disposed in the second passageway.

18. (Previously Presented) The humidity control system of claim 17, wherein:
in the outdoor filter, the first filter part and the second filter part are integral with each other; and
the outdoor filter is arranged such that it extends over both the outside-air inflow surface of the first heat exchanger and the outside-air inflow surface of the second heat exchanger.

19. (Previously Presented) The humidity control system of claim 18, wherein,
within the casing, the first heat exchanger and the second heat exchanger are disposed adjacently to each other and the inflow surface of the first heat exchanger and the inflow surface of the second heat exchanger lie on the same plane, said same plane being perpendicular to the fan side lateral plate.

20. (Previously Presented) The humidity control system of claim 16, wherein the casing is provided with a take-out opening from which the outdoor filter can be taken out.

21. (Previously Presented) The humidity control system of claim 17, wherein the humidity control system is operable to switch its operation between:

a first operation in which outside air is distributed first through the first filter part and then through the first heat exchanger and is thereafter supplied to the indoor space while simultaneously room air is distributed first through the second heat exchanger and then through the second filter part and is thereafter discharged to the outside space; and

a second operation in which outside air is distributed first through the second filter part and then through the second heat exchanger and is thereafter supplied to the indoor space while simultaneously room air is distributed first through the first heat exchanger and then through the first filter part and is thereafter discharged to the outdoor space.

22. (Previously Presented) The humidity control system of claim 17, wherein:

the humidity control system includes an indoor filter which is disposed in a passageway through which room air is made to flow into either of the first or the second passageways; and

the humidity control system is operable to switch its operation between:

a first operation in which outside air is distributed first through the first filter part and then through the first heat exchanger and is thereafter supplied to the indoor space while simultaneously room air is distributed first through the indoor filter, then through the second heat exchanger, and then through the second filter part and is thereafter discharged to the outside space; and

a second operation in which outside air is distributed first through the second filter part and then through the second heat exchanger and is thereafter supplied to the indoor space while simultaneously room air is distributed first through the indoor filter, then through the first heat exchanger, and then through the first filter part and is thereafter discharged to the outdoor space.

23. (Previously Presented) The humidity control system of either claim 1 or 16, wherein:

a first passageway in which the first heat exchanger is disposed, a second passageway in which the second heat exchanger is disposed, and a room-air supplying passageway through which room air is made to flow into either of the first or the second passageways are formed in the casing; and

the humidity control system includes an indoor filter which is disposed in the room-air supplying passageway.

24. (Previously Presented) The humidity control system of either claim 1 or 16, wherein:
a first passageway in which the first heat exchanger is disposed and a second passageway in which the second heat exchanger is disposed are formed in the casing; and

the humidity control system includes:

a suction opening which faces the indoor space by being in fluid connection with an air passageway which is located nearer to the indoor space than the first and second passageways in the casing; and

an indoor filter which is disposed in the vicinity of an opening part of the suction opening.